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21 July 1967

MEMORANDUM FOR: Deputy Director for Science and Technology

ATTENTION : [redacted] 25X1A

SUBJECT : Annual Report for the President's Foreign Intelligence Advisory Board

1. The attached is submitted in response to paragraph F. 2 of subject report.

2. In addition to the items submitted in the attached, OCS provides automatic data processing support to a number of intelligence collection, processing, analysis and production projects. We understand that these projects will be described in the reports of the sponsoring components.

/s/

CHARLES A. BRIGGS
Director of Computer Services

Attachment: a/s

Distribution:
Orig + 1 - Adse
1 - File
25X1A 1 - Chrono
D/OCS: [redacted] mru:4011(21Jul67)

SECRET

21 July 1967

DRAFT OF OCS CONTRIBUTION TO THE ANNUAL REPORT FOR THE PRESIDENT'S FOREIGN INTELLIGENCE ADVISORY BOARD

F. Processing of Raw Intelligence, Including the Application of Automated Data Handling Systems to Problems of Information Control and Retrieval

2. Information Handling and Retrieval Systems

a. Third-Generation Computer Systems

The Office of Computer Services (OCS), which provides automatic data processing services to all Directorates of the Agency, has continued to implement its plan for transition to third-generation computer systems. The major systems installed at the present time include:

2 - IBM 360/65 Systems

2 - IBM 360/50 Systems

IBM 360/20 System

RCA 501 System

RCA 301 System

ANDI System (Analog to digital converter)

Scheduled for installation during the 1st quarter of FY-68

are another IBM 360/20 for input/output processing, an IBM 360/40 for time-sharing and remote inquiry consoles, and a RCA Spectra 70/45 for additional support on management applications. An IBM 7090 and an IBM 7010 have been displaced by these equipment changes. The speed, capacity, versatility, and lowered cost (per unit of processing) of the newer equipment has improved the efficiency of automatic data processing services used in support of intelligence collection, analysis, and production functions.

b. Page Reader System

25X1A

A CDC Page Reader System, originally acquired as an optical scanning input device for [redacted] computer applications, passed acceptance testing in September 1966. It has been used for Subject Keyword Announcement (SKAN) indexing of non-codeword document receipts on Communist China; it is also being applied to other processes such as the conversion of psychological test answer sheets and specially typed textual data for computer input. This system improves accuracy in preparation of intelligence data for computer processing and eliminates burdensome card punch and card verifying operations.

c. Analog to Digital Conversion and Analysis System

The Analog to Digital Conversion equipment (ANDI), which was developed by [redacted], passed 25X1A acceptance testing in March 1967. A problem-oriented language has been developed which enables users to convert analog data to desired digital data. Another problem-oriented language, which enables the user to call upon a library of various routines for the analysis of digital data, is being tested. This library is being built; two such routines have been completed. The unique characteristics which make this system of hardware and software a significant advancement in the area of signal analysis are:

--The ability to digitize "burst" type transmissions (as high as 10 megacycles);

--The ability to edit the analog data concurrently with digitizing.

d. Terminal-Oriented Query Language (TORQUE)

A computer language and associated programs have been developed in-house which enable analysts to create, maintain, or query formatted data files from terminal consoles linked

to an IBM 360 computer. The data files are stored on disc or magnetic tape; queries (in the TORQUE language) are entered thru the keyboard of an IBM 2260 Display Station, 1050 Terminal, or 2741 Communication Terminal. The magnetic tape or disc is then searched according to the specific query; results are stored on disc for subsequent display. The system has been tested and demonstrated with various small data files. The considerable interest which it has created among analysts indicates that it will have application to a number of intelligence information storage and retrieval applications. The major advantages of the system are the ease by which it can be applied to existent computer data files and the simplicity of the query language and terminal operations.

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DD/S&T# 3161-67

4 August 1967

MEMORANDUM FOR: Deputy Director for Science and Technology

ATTENTION : [redacted] 25X1A

SUBJECT : Annual Report for the President's Foreign Intelligence Advisory Board

REFERENCE : A. Memorandum dtd 21 Jul to DDS&T from OCS, same subject
B. Memorandum dtd 5 Jul to OCS from DDS&T, same subject

In response to your request for additional information which might be used for Section M of the subject report, supplement to the OCS contribution is attached.

/s/

CHARLES A. BRIGGS
Director of Computer Services

Attachment: a/s

Distribution:
Orig + 1 - Adse
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1 - Chrono
O/D/OCS: [redacted]/mru:4011(4Aug67)

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4 August 1967

SUPPLEMENT TO DRAFT OF OCS CONTRIBUTION TO THE ANNUAL REPORT FOR THE PRESIDENT'S FOREIGN INTELLIGENCE ADVISORY BOARD

M. Deficiencies (Significant gaps and deficiencies in departmental programs and efforts to meet intelligence and covert action needs, and steps being taken to remove such gaps and deficiencies.)

4. Application of computers to intelligence processing requirements

The application of computers to intelligence analysis and production discloses three areas in which significant deficiencies or gaps exist:

a. The installation of third-generation computer systems has demonstrated the ability of equipment manufacturers to design and construct computer hardware with much improved capabilities: larger and faster memories, improved intermediate storage devices (disc units, data cells, etc.) and a wide range of terminal console devices for man-machine communications over great distances (cathode ray tube displays, telecommunications terminals, etc.). However, the complementary software (computer programs and operating systems)

to exploit fully this hardware capability has not been produced by equipment manufacturers on a schedule which matches hardware production, nor has the performance of the software been efficient.

b. The application of real-time or near real-time computer systems for the processing and interpretation of raw intelligence data or for the storage and retrieval of indexed intelligence information has not kept pace with the intelligence analyst's interest in or need for such systems.

c. Computer techniques need to be developed and tested for absolute protection of compartmented computer data files while such files are being processed on a computer in a time-sharing, multi-programming, or multi-processing environment. Without a solution to this problem which satisfies the operating officials who have prime responsibility for security measures, much of the processing capability of computers will be sacrificed in the Intelligence Community.

To improve the situations described above, OCS has expressed dissatisfaction with the productivity of third-generation computer systems directly [redacted] and adjustments which have reduced CIA rentals have

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followed. This loss of revenue [redacted] attributable to inefficient manufacturer software, is a positive force upon them which, particularly when added to others' complaints, will lead to improved software. Also, thru computer user groups, the manufacturers of equipment are being made aware of necessary software improvements. Active recruitment of highly skilled computer technicians has enabled OCS to improve its professional cadre so that time-sharing systems and other advanced techniques can be developed in-house to meet the increased analyst interest in such techniques. In the matter of security, several studies have been made which have resulted in improved security procedures for ADP activities; further development and test activity is planned to meet the more complex security implications of time-shared computer systems.